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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEE, SIU M

ART UNIT

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2611

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,307	Applicant(s) BHAT ET AL.	
	Examiner SIU M. LEE	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,10-14 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6 is/are rejected.
- 7) ☒ Claim(s) 1-3,10-14 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1-3, 6, 10-14, and 17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 1-14 and 17 are objected to because of the following informalities:

Claim 1, line 15 (step e)) recites "amplifier-to", the examiner suggests changing to ---amplifier to---.

Claim 6, line 6 recites "the amplifier", the examiner presume it refer to "a wideband amplifier" in line 2 of claim 6, the examiner suggest changing "the amplifier" to ---the **wideband** amplifier-- for consistency.

Claim 17, line 16 (step e)) recites "amplifier-to", the examiner suggests changing to ---amplifier to---.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,831,705 B2) in view of Izumiyama (US 6,141,561).

Yamamoto discloses a method for automatically setting an operative state of a wideband amplifier (high gain RF amplifier 31 in figure 1) in a multi-channel receiver, the method comprising the steps of:

measuring at least one signal quality parameter (band limited IF signal level is detected by the detector 18 as shown in figure 1, column 5, lines 42-44); and

deciding to switch the amplifier either to its ON state (active state) or to its OFF state (inactive state) on the basis of the measured parameter (the detected level by the detector 18 is passed to the microcomputer 22 and control the switch circuit 29 based on the output of detector 18, column 6, line 66 - column 7, line 14),

wherein the step of deciding to switch the amplifier to its ON state (active state) is taken during at least one time interval when the receiver is switched to a channel (if the read flag is on (=1) the microcomputer 22 turn on the booster 31 by switching the contact point 28 to the input terminal side of the high gain RF amplifier 31 by means of the switch circuit 29, column 7, lines 48-52).

Yamamoto further the detected result of the level is passed to an AGC (automatic gain control) circuit 19, which then outputs a gain control signal on the basis of the detected result given, the RF amplifier 12 has its gain controlled in accordance with the gain control signal output from the AGC circuit, column 5, lines 44-51).

Yamamoto fails to explicitly disclose measuring a signal quality for determination of operation of an amplifier (on/off) comprises determining whether a DC voltage level of

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an automatic gain control signal has a first value indicating that the automatic gain control is inactive or has a value within a predetermined range indicating that the automatic gain control system is active.

However, in the same field of endeavor, Izumiyama discloses a method comprises when AGC voltage for controlling a gain of an intermediate frequency amplifier circuit is not higher than the predetermined voltage, induces the received signal to the processing circuit through the amplifier circuit at the forefront stage while when the AGC voltage exceeds the predetermined voltage, the received signal is induced to the processing circuit through the bypass circuit (column 3, lines 44-53).

The examiner interprets the intermediate frequency amplifier of Izumiyama as the interface amplifier 16 of Yamamoto, and the forefront stage amplifier of Izumiyama as the high gain amplifier 31 of Yamamoto. Therefore, Izumiyama discloses taking the measurement of the gain control (AGC) voltage of the IF amplifier and when the AGC voltage of the IF amplifier has a first value under the predetermined voltage level, the signal would pass through the front stage amplifier (on stage on the front stage amplifier) (similar to high gain RF amplifier 31 of Yamamoto), and when the AGC voltage level has a value within a predetermined range (above the predetermined value), then the front stage amplifier would be bypass (off stage on the front stage amplifier). Izumiyama also discloses in column 2, lines 45-48, when the AGC voltage have the maximum gain, the intermediate amplifier is on it activated stage, therefore, when the AGC voltage value of the intermediate amplifier is above the predetermined level, the intermediate amplifier is active. With respect to the limitation that the AGC

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control voltage is a DC voltage, Izumiyama discloses an invention that is implemented on a mobile station, therefore the AGC control voltage has to be in direct current (DC).

It is desirable to measure a signal quality for determination of operation of an amplifier (on/off) comprises determining whether a DC voltage level of an automatic gain control signal has a first value indicating that the automatic gain control is inactive or has a value within a predetermined range indicating that the automatic gain control system is active because it can avoid the front stage amplifier to amplify both the desired signal and the non-desired signal at the same time (column 2, lines 55-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Izumiyama in the method of Yamamoto to reduce the distortion and improve the reception quality.

Allowable Subject Matter

5. Claims 1-3, 10-14, and 17 are objected to for minor informality, but would be allowable if rewritten to overcome the objection.

6. The following is a statement of reasons for the indication of allowable subject matter:

The present invention describes a method and apparatus for automatically setting an operative state of a wideband amplifier in a multi-channel television receiver, the method comprising the steps of measuring at least one signal quality parameter; and deciding to switch the amplifier either to its ON state (active state) or to its OFF

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state (inactive state) on the basis of the measured parameter, wherein the step of deciding to switch the amplifier to its ON state (active state) is exclusively taken during at least one time interval when the receiver is switched to a channel, or during activation of the multi-channel television receiver, or during an installation process when all channels are scanned; wherein the step of deciding to switch the amplifier comprises the steps of:

a) switching the amplifier to its OFF state (inactive state);

b) measuring a value of $S_{IP}(LNA=OFF)$ said at least one signal quality parameter while the amplifier is maintained in its OFF state;

e) switching the amplifier to its ON state (active state);

f) measuring a value of $S_{IP}(LNA=ON)$ said at least one signal quality parameter while the amplifier is maintained in its ON state;

g) comparing the two measured values ($S_{IP}(LNA=OFF)$; $S_{IP}(LNA=ON)$);

h1) if the difference between the two measured values ($S_{IP}(LNA=OFF)$; $S_{IP}(LNA=ON)$) indicates more intermodulation products in the case when the amplifier is in its OFF state as compared to the case when the amplifier is in its ON state, deciding to switch the amplifier to its ON state;

h2) if the difference between the two measured values ($S_{IP}(LNA=OFF)$; $S_{IP}(LNA=ON)$) indicates more intermodulation products in the case when the amplifier is in its ON state as compared to the case when the amplifier is in its OFF state, deciding to switch the amplifier to its OFF state.

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The closest prior art, Hutchison, IV et al. (US 5,722,061), Yamamoto (US 6,831,705 B2) and Kenny et al. (US 6,009,129) all disclose a system that disable or bypass an amplifier based on intermodulation distortion, however, none of the references disclose using the difference between the two measured values ($S_{IP}(LNA=OFF)$; $S_{IP}(LNA=ON)$) to determine if more intermodulation products in the case when the amplifier is in its OFF state as compared to the case when the amplifier is in its ON state, deciding to switch the amplifier to its ON state and vice versa. This distinct feature has been added to independent claims 1 and 17, thus rendering claims 1-3, 10-14, and 17 allowable.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wieck (US 7,061,993 B2) discloses a CDMA receiver architecture for lower bypass switch point.

Yamanaka et al. (US 6,728,524 B2) discloses an automatic gain control circuit for controlling two AGC amplifiers.

Giebel (US 6,073,848) discloses a digital automatic gain control for multi-stage amplification circuits.

Younis et al. (US 6,134,430) discloses a programmable dynamic range receiver with adjustable dynamic range analog to digital converter.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Siu M Lee/
Examiner, Art Unit 2611
5/13/2010

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2611